XOR Media CloudAqua

Key Features

Network file system
Integrated management of massive cross-regional cross-network data is done by various embedded engines. Complex management of big data such as backup, recovery, sharing, and transfer is done in an automated way;

Powerful policy engine
Flexible policy can be created to automate the operation and management of the storage;

WAN acceleration suitable for big data transfer

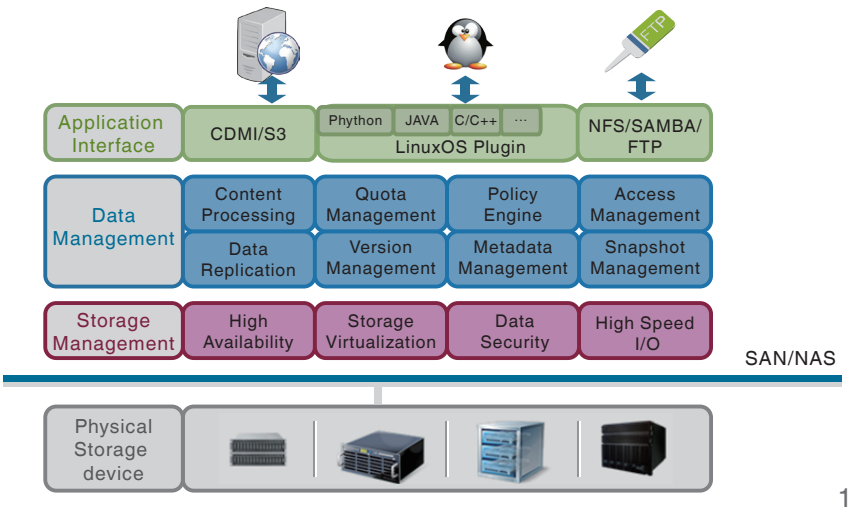
Heterogeneity
Files are stored in an intelligent way according to such characteristics as the time they saved and frequency they are accessed. Compatible with various types of storage devices from different vendors.

Native support Media Flow
Automatic file processing during file upload and transfer based on the object's metadata and pre-defined policies.

With the arrival of big data era, conventional storage is barely able to meet the requirements of real time dynamic management, transfer, sharing and application of big data. Cloud computing and cloud storage have begun providing the solutions and development space for the management and application of big data. Establishment of object's data service based on the framework of cloud storage is the best solution for the storage and application of massive big data from data center.

XOR's Cloud Aqua, the object's data storage service, is multi-site based shared storage service to realize remotely or cross network real time sharing and intelligent management of big data file, virtualization and consolidation of storage resources, and making management more effectively. Storage space and network resources are allocated by actual needs. The allocation quota can be adjusted flexibly by the change of business needs for enhancing utilization and efficiency. Storage can be upgraded to the order of magnitude of PB. It can achieve a higher level of data security and disaster recovery, quicker and easier data recovery.

CloudAqua's key functional framework unifies management (such as storing, copy, disaster recovery, transfer, security, etc.) of storage object's files across physical locations and networks by using multiple engines. Designed as distributed, its engines can easily expand the services at any time as needed possessing greater flexibility.



Features	Technical Benefits
Distributed and federated object storage	- High flexibility, high scalability. Able to expand accordingly as demand for storage grows. Meanwhile read and write performance increases linearly. Storage access I/O increases as the number of storage nodes increases. - Highly fault-tolerant data security. Transparent access to upper layer. - Support heterogeneous storage devices, protect what has been invested, and unify management of devices and resources. - Quick access by independent objects. High performance, low latency. Parallel processing of objects and data. More suitable for object-oriented programming language.
Metadata-based management of storage	- The tiling approach by object storage makes quick scan and management possible based on various types of metadata. - Virtualization of storage directory. User can manage objects by using conventional directories or by using other metadata. - Objects can be utilized by various applications at the same time. Application-specific attributes, tags, and remarks can be added to objects as well. - Able to manage efficiently by doing quick scanning based on all kinds of metadata, create virtual directories and make metadata-based searches possible. Can automatically parse and reconstruct property files like ADI, XML, m3u8 in the process of integration with conventional application.
MapReduce combined with big data processing	Achieve concurrent processing of big data on 3 different levels - Metadata-based query: simple, massive big data queries can be accomplished by means of object's metadata - Metadata-based Map Reduce: complex mapping and query of metadata - The need for complex mapping scenes based on data. - CloudAqua can work collaboratively with Map-Reduce.
Shared access by multi-level users	- Able to create multiple users in the domain of CloudAqua, and set different user permission and privilege for data access and management.
Multiple replications	- Multiple replicas to ensure data integrity - Various approaches to synchronization of replications(asynchronous replications, synchronous replications, cached replications) suitable for different read/write and synchronization performance.
Supporting different interfaces	- Support plug-ins of mainstream Windows and Linux OS - Restful API - S3 API - CDMI - NAS protocols: NFS, SAMBA, FTP, HTTP etc. - Various SDK package interfaces (java, dotnet, phython, C/C++, android, ios, javascript) and plug-ins of mainstream OS. - iSCSI, for block devices over virtualized cloud storage such as Ceph
Empowered storage management capabilities	- Support various storage platforms and tools, including Ceph, XOR SHAS (a soft RAID tool provided by XOR Media), and basic Linux storage such as LVM - Able to manage raw disks directly
High compatibility	- Able to be integrated with cloud services from other vendors such as Openstack SWIFT - Compatible with the OpenStack Block Storage (Cinder)
WAN acceleration suitable for big data transfer	- UDP protocol based peer-to-peer(P2P) for unicast/multicast, speed up file transfer, and consume less network resources. - To transfer an object, for efficiency and acceleration of big data file transfer, divide file into chunks with manageable size and execute the transfer concurrently in multiple sessions.
QoS	- Able to limit throughput to threshold based on file objects

Features	Technical Benefits
Quick snapshots and restore	- Copy-on-write approach - Unlimited number of snapshots - Supporting directory snapshots with directory depth level up to 100. - Able to generate by taking a snapshot of directory with files in writing - Execute snapshots by taking advantage of replicated data to reduce storage consumption and speed up generation. - User is allowed to manage snapshots by generating, viewing, rolling back, restoring and deleting them.
Policy-based intelligent media flow engine	- Automated replication generation on the specified site/cluster in a specified manner (synchronous or asynchronous) - Various automated processing of coding such as transcode, compression, sniffing, dedupe, Checksum. - User can make up policies for processing according to object's metadata so that objects get processed in a unified way instantly and automatically after having uploaded or updated - User can make up policies according to metadata and manage post-processing data files such as automatically distributing, searching, grouping. - Policies user made up can be saved in scripts. These policy scripts can be exported or imported when needed. Policy engine executes a policy through parsing the policy script.
Services of processing for digital media	- Process remotely uploaded or updated digital media files according to pre-defined policies, e.g. transcode, sniffing, encryption, file standardization. - After a media file being processed multiple versions of it are generated. They can all be retained and distributed on demand. - CloudAqua can be integrated with a variety of broadcasting system, interactive TV as well as network CDN and OTT. The integrated third-party system may receive processed media files at each site.
Data security	**Storage Safety and security** - Architecture of all servers is High Availability - Soft RAID protection of data - All data are replicated across sites to ensure elevated system's capability of data disaster tolerance. **Operational security** - Integrate LDAP (Lightweight Directory Access Protocol) and active directory. Authorize and authenticate access to read/write. - Able to set directory access permissions - Audit log records all users' run on the system and files. **Disaster tolerance** - When problem occurs at the primary site, a secondary site will automatically take over the primary role. - When the original primary site has recovered, it reclaims its primary role.

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